

# Existing Works — Water Quality

Year		1988	1988	1988	1988	1990	2003	2004	2004
Organization		U.S. Bureau of Reclamation (USBR)	U.S. Department of Energy (DOE)	Assembly Of fice of Research (AOR)	National Park Service (NPS)	Department of Water Resources (DWR)	University of California, Davis (UCD)	University of California, Berkeley (Cal)	Environmental Defense (ED)
Background							✓		✓
Watersheds/sources	Hetch Hetchy								
	Cherry/Eleanor								
	Don Pedro								
	Sacramento-San Joaquin Delta								
	Groundwater (various regions)								
	Constituents of concern (data)								✓
Domestic water quality	Public health								✓
	Customer acceptance								
	Industrial								
	Filtration avoidance						✓		
	Treatment								✓
	Constituents of concern (data)								✓
Environmental water quality	Lower Tuolumne River								
	Lower San Joaquin River & Delta								
	Constituents of concern (data)								
Costs							✓		✓

Note: Check mark does not mean information need is adequate, only that some discussion or information is available.

# Water Quality

## INITIAL OBSERVATIONS ABOUT WATER QUALITY July 14, 2005

Background. The following table provides a comparative example of water quality considerations for the three water sources most often mentioned in conjunction with the restoration of Hetch Hetchy Valley on the upper Tuolumne River. Please note that the water quality data below provide a mere snapshot of treated water quality delivered to customers for the most recent year for which data is readily available [2004], as self-reported by the subject water utilities. And because it is based upon readily available sources, information is not provided regarding pollutants for which data is not readily available or even generally collected, such as unregulated contaminants or emerging contaminants. The data is also not necessarily representative of variations due to seasons, differing hydrologic conditions, or specific events, which can impact treatment operations. In all, during 2004, the treated water quality produced from each of these water sources and treatment plants met all drinking water standards.

Water Source	Hetch Hetchy Reservoir	Modesto Reservoir	Sacramento-San Joaquin Delta
<b>Watershed</b> ("PCA is possible contaminating activities" from the Drinking Water Source Assessment Program)	Drainage area is entirely within Yosemite National Park, with little development or access; (3 PCAs with the highest vulnerability score)	Drainage area is the upper Tuolumne River, including Hetch Hetchy and Don Pedro watersheds; immediate watershed is vulnerable to 4 PCAs (none with the highest vulnerability score).	Drainage area is the Sacramento and San Joaquin River watersheds, with numerous cities, farms, businesses, and other pollution sources; vulnerable to 36 PCAs (9 PCAs with the highest vulnerability score)
<b>Treatment Plants</b>	Rock River, Tesla Portal, Sunol Valley, and Polhemus (San Francisco Public Utilities Commission)	Modesto Regional Water Treatment Plant (Modesto Irrigation System)	Treatment Plant No. 2 (Alameda County Water District)
<b>Treatment process</b>	pH adjustment; chloramination; fluoridation	Ozonation; conventional filtration; chlorination; pH adjustment	Ozonation; conventional filtration; chlorination; pH adjustment; fluoridation
<b>Selected treated water quality data</b>	Coliform: 0.6% positive Lead: 11.5 ppb TTHMs: 11-46 ppb HAAs: 5-33 ppb Bromate: N/A TDS: 29-171 ppm Chloride: 3-44 ppm Total hardness: 7-145 ppm (as CaCO <sub>3</sub> )	Coliform: not reported Lead: not reported TTHMs: 23-43 ppb HAAs: 23-30 ppb Bromate: <5 ppb TDS: 28-58 ppm Chloride: 3 ppm Total hardness: 35 ppm (as CaCO <sub>3</sub> )	Coliform: not reported Lead: 7.4 ppb TTHMs: N/D - 78 ppb HAAs: N/D - 57 ppb Bromate: N/D - 11 ppb TDS: 221-286 ppm Chloride: 41-58 ppm Total hardness: 79-139 ppm (as CaCO <sub>3</sub> )

### Key

N/D: not detected at the reporting level  
TTHMs: Total trihalomethanes (by-products of disinfection that are suspect carcinogens)  
HAAs: Haloacetic acids (by-products of disinfection that are suspect carcinogens)  
TDS: Total dissolved solids  
ppm: parts per million  
ppb: parts per billion

**Explanations.** There are no large public water systems that currently use Don Pedro Reservoir directly as a domestic water source; however, Modesto Irrigation District (MID) treats Tuolumne River water impounded in Modesto Reservoir, located downstream of Don Pedro and La Grange Dams, for the City of Modesto. For the Sacramento-San Joaquin Delta source, Treatment Plant No. 2 of the Alameda County Water District (ACWD) was selected to be representative of state-of-the-art facilities that treat Delta water; in addition, this plant is fed from the South Bay Aqueduct, just downstream from where San Francisco Public Utilities Commission currently has a turnout to the State Water Project.

Treated water quality data presented and discussed here represent contaminants of concern for public health, public acceptance, and industrial use. Coliform (a surrogate measure for microbiological quality), THM, and HAA levels are from distribution system samples and, thus, are influenced not only by water source and treatment, but also the distribution system as well as potential blending with other water sources. Levels for bromate, another disinfection by-product, are at the treatment plant. For the SFPUC, data reported represents Hetch Hetchy water blended with a small percentage of local supplies; a review of data from Groveland Community Services District, which uses 100% Hetch Hetchy water, indicates that Hetch Hetchy is towards the lower end of the range reported for total dissolved solids, chloride, and total hardness. Lead levels are at the 90th percentile compliance level of samples collected at household taps. None of the three subject utilities reported any detection of other contaminants commonly of public interest, such as arsenic, pesticides, industrial chemicals, methyl tertiary-butyl ether (MTBE), chromium, or perchlorate. Turbidity levels, important for both public health and public acceptance, at both ACWD's and MID's treatment plants were in compliance with the filtration performance standard, and for the Hetch Hetchy source, met the filtration avoidance criterion. Nitrate and radon levels, while also of public interest, are generally not concerns in surface waters, and, therefore, are not listed or discussed here.

## Information Sources

Drinking Water Source Assessment Program  
California Department of Health Services

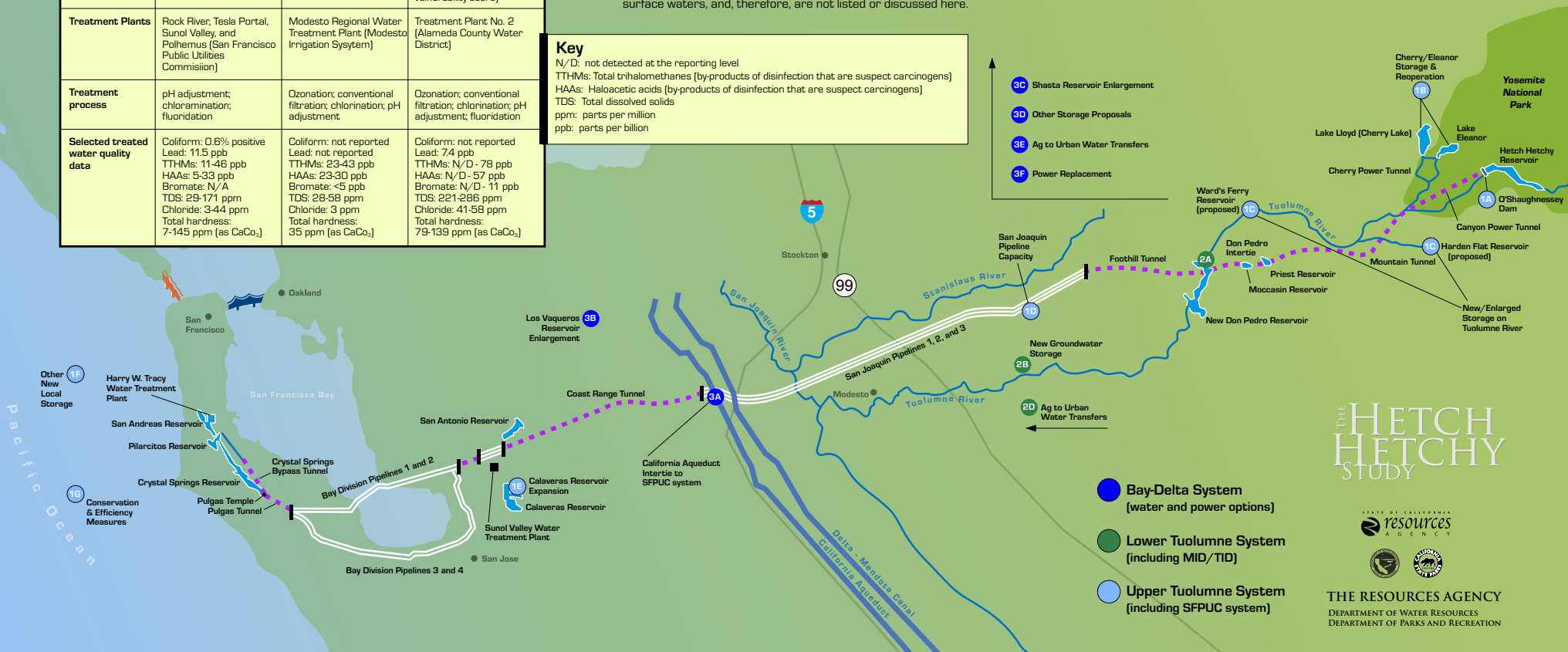
San Francisco Public Utilities Commission  
2004 Water Quality Report

Groveland Community Services District  
2003 Consumer Confidence Report

City of Modesto  
Consumer Confidence Report 2005

Alameda County Water District  
Water Quality Report 2004

California Department of Health Services



THE HETCH HETCHY STUDY

STATE OF CALIFORNIA  
resources AGENCY



THE RESOURCES AGENCY  
DEPARTMENT OF WATER RESOURCES  
DEPARTMENT OF PARKS AND RECREATION